(August 5, 2002)

Resin Bonded Anchors

The resin bonded anchor system shall include the nut, washer, and threaded anchor rod which is installed into hardened concrete with a resin bonding material. The resin bonded anchor system shall conform to the following requirements:

1. Threaded Anchor Rod and Nuts

   Threaded anchor rods shall conform to ASTM A 193 Grade B7 or ASTM A 449, except as otherwise noted, and be fully threaded. Threaded anchor rods for stainless steel resin bonded anchor systems shall conform to ASTM F 593 and shall be Type 304 unless otherwise specified.

   Nuts shall conform to AASHTO M 291, Grade DH, except as otherwise noted. Nuts for stainless steel resin bonded anchor systems shall conform to ASTM F 594 and shall be Type 304 unless otherwise specified.

   Washers shall conform to AASHTO M 293, except as otherwise noted. Washers for stainless steel resin bonded anchor systems shall conform to ANSI B18.22.1 and shall be Type 304 Stainless Steel unless otherwise specified.

   Nuts and threaded anchor rods, except those manufactured of stainless steel, shall be galvanized in accordance with AASHTO M 232. Galvanized threaded anchor rods shall be tested for embrittlement after galvanizing, in accordance with Section 9-06.5(4).

   Threaded anchor rods used with resin capsules shall have the tip of the rod chiseled in accordance with the resin capsule manufacturer's recommendations. Galvanized threaded rods shall have the tip chiseled prior to galvanizing.

2. Resin Bonding Material

   Resin bonding material shall be one of the following:

   a. Vinylester resin.

   b. Polyester resin.

   c. Methacrylate resin.

   d. A two component epoxy resin which meets the requirements of ASTM C 881, Type IV. The grade and class of the epoxy resin shall be as recommended by the epoxy resin manufacturer and as approved by the Engineer.

3. Ultimate Anchor Tensile Capacity

   Resin bonded anchors shall each have the following minimum ultimate tensile load capacity when installed in concrete having a maximum

compressive strength of 6000 pounds per square inch (psi) at the embedment specified below:

Anchor Diameter (inch)	Tensile Capacity (lbs.)	Embedment (inch)
3/8	7,800	3-3/8
1/2	12,400	4-1/2
5/8	19,000	5-5/8
3/4	27,200	6-3/4
7/8	32,000	7-7/8
1	41,000	9
1-1/4	70,000	11-1/4